CLAIMS

What is claimed is:

1. A method for central control and intelligent routing of data network traffic comprising the steps of:

A. Continuously collecting data from the network components;

B. Determining congestions and error conditions;

C. Determining routing solutions to alleviate the problems; and

D. Implementing the solutions by changing the configuration of network components.

2. The method of claim 1 further comprising the step of:

E. Identification of congestion on the links using standard statistical methods and a user defined threshold.

3. The method of claim 1 further comprising the step of:

E. Sequencing of actions to be taken while implementing the solution in the network..

4. The method of claim 1 further comprising the step of:

E. Determination of the solution by changing the routing of one or more demands to alleviate the network problem.

5. A system for central control of routing of a digital network comprising:

A Data Collection engine;

An Analysis engine;

A Configuration engine;

A Communication Bus engine;

A Data Store engine ; and

A User Interface engine.

6. The system of claim 5 wherein the data collection engine performs the steps of:

collecting network data;

correct and fills missing data, and

convert the data to a format for use by the Data Store Engine.

7. The system of claim 5 wherein the data analysis engine performs the steps of:

retrieve a report of a network problem from the data store engine,

formulates the problem as a set of mathematical equations,

solves the equations, wherein the solution provides a solution for the set of traffic under management.

8. The system of claim 5 wherein the communication bus performs the step of:

allow for message to be posted by an engine to be viewed by another engine.

9. The system of claim 7 wherein the communication bus performs the step of:

allow for message to be posted by an engine to be viewed by another engine.

10. The system of claim 8 wherein the data collection engine performs the steps of:

collecting network data;

correct and fills missing data, and

convert the data to a format for use by the Data Store Engine.

11. A network server for providing routing of a digital network, comprising:

a computer,

wherein the computer is capable of being operatively connected to the network,

wherein the computer is capable of receiving data from a plurality of nodes within the network,

wherein the computer is capable of recognizing network congestions, and

wherein the computer is capable of rerouting traffic.

12. The server of Claim 11 wherein the computer is capable of formulating solution of network congestion.

13. The server of Claim 12 wherein the computer formulates the solution by minimizing an equation.

14. The server of Claim 13 wherein the equation comprises:

$$\sum_{uv,i,j} \frac{C_{ij}}{P^{uv}} x_{ij}^{uv},$$

wherein the equation is subject to the equations comprising:

$$\sum_j x_{kj}^{uv} - \sum_i x_{ik}^{uv} \qquad \forall \kappa \notin \{u,v\}, \forall (u,v)$$

$$\sum_j x_{uj}^{uv} \qquad \forall (u,v)$$

$$\sum_j T^{uv} * x_{ij}^{uv} \leq B_{ij} \qquad \forall [i,j]$$

$$x_{ij}^{uv} = 0 \text{ or } 1 \qquad \forall (u,v), \forall [i,j]$$

Wherein the variable comprise:

(u,v)	=	demand pair from originating point u to destination point v
[i,j]	=	arc i,j
C_{ij}	=	Cost of arc[i,j]
P^{uv}	=	penalty of demand (u,v)
T^{uv}	=	bandwidth of demand (u,v)
$B_{i,j}$	=	bandwidth available on arc [i,j]

x_{ij}^{uv} = variable to be solved

15. The server of Claim 12 wherein the equation is utilizes a priority value of a network demand based on business attributes and criterions.

16. The server of Claim 15, wherein the priority value is calculated by the steps of:
a user selecting from a plurality of business attributes;
the user creating of a defined mathematical formula based on the attributes to calculate relative priorities of demands;
computer automated collection of data related to the current value of the business attributes; and
computer automated calculation of a priority values.